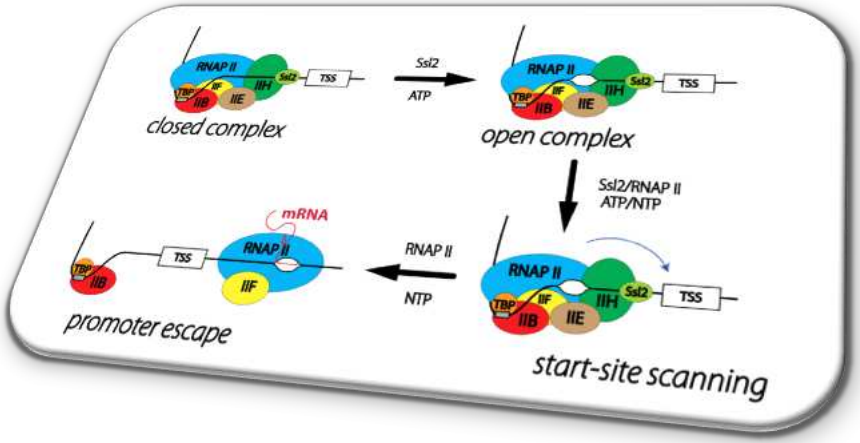
Welcome to the Department of Biochemistry and Molecular Biophysics

Washington University in St. Louis
School of Medicine

Spotlight on Research

The **Galburt Lab** strives to understand the physical mechanisms of transcription initiation and other important DNA-protein interactions. More specifically, we use a variety of single-molecule and ensemble biophysical techniques including both optical and magnetic tweezers and fluorescent microscopy to investigate how the assembly of initiation complexes on gene promoters leads to DNA unwinding and transcription. Our work is currently focused on the mechanisms of basal transcription initiation in Eukaryotes and on factor-regulated transcription in Mycobacterium tuberculosis.



See more research:
biochem.wustl.edu/spotlight

Congratulations to Andrea Soranno

October 19th, 2018 – **Andrea Soranno, PhD**, Assistant Professor of Biochemistry and Molecular Biophysics received a New Investigator Award in Alzheimer's Disease from the American Federation for Aging Research (AFAR), Inc. for his work entitled ***"Identifying Neurotoxic Conformers in the Structural Ensemble of apoE".***

Farmer's Market

Inside the McDonnell Pediatric Research Building
or
Outside on the Plaza
(weather permitting)

Every Thursday!
10:00 am - 2:00 pm

Symposium in Honor of Jim Janetka

On Friday, November 2nd, 2018, the Saint Louis Section of the American Chemical Society will hold an Award Symposium honoring **Dr. Jim Janetka**.

The afternoon will have several speakers, followed by a reception.

Make sure to send in your reservation by October 30th if you wish to attend!

Visit **biochem.wustl.edu/links** for more information on the symposium and how to get reservations.

Are you paid monthly?

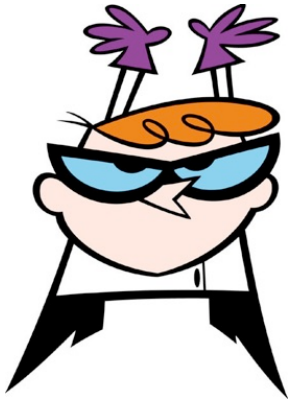
Please remember that your time report is due by the 5th of each month.

Don't Forget!

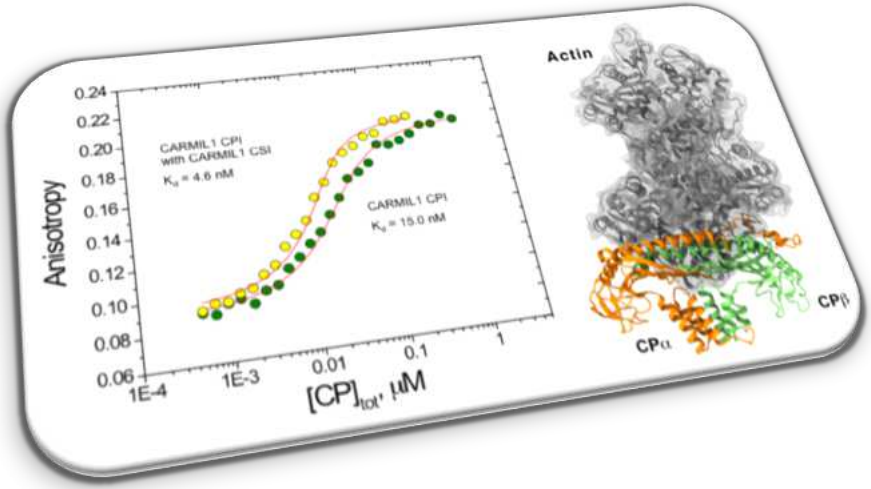
Please keep your lab locked if no one is in the lab when you leave.

And take your keys with you!

Please remember to take your gloves off when leaving the lab.



Spotlight on Research



The **Cooper Lab** is interested in how the actin filaments in cells assemble and how that assembly controls cell shape and movement. One focus is an actin-binding protein called "capping protein," which caps one end of the actin filament. Capping protein is in turn regulated by intrinsically disordered regions of the CARMIL family of proteins, which exhibit positive linkage in their binding interactions.

See more research:
biochem.wustl.edu/spotlight

September Publication

Welty R., Pabit S.A., Katz A.M., Calvey G.D., Pollack L., & **Hall K.B.**

Divalent ions tune the kinetics of a bacterial GTPase Center rRNA folding transition from secondary to tertiary structure.

RNA. pii: rna.068361.118. doi: 10.1261/rna.068361.118. (2018)

HAVING ISSUES AT WORK? WE'RE HERE TO HELP.

Contact any of the following for help

Jayma Mikes, Business Manager, jmikes@wustl.edu, 314-362-0262

John Cooper, Department Head, jcooper11@gmail.com, 314-362-3964

Jessica Kennedy – Title IX Director, jwkennedy@wustl.edu, 314-935-3118

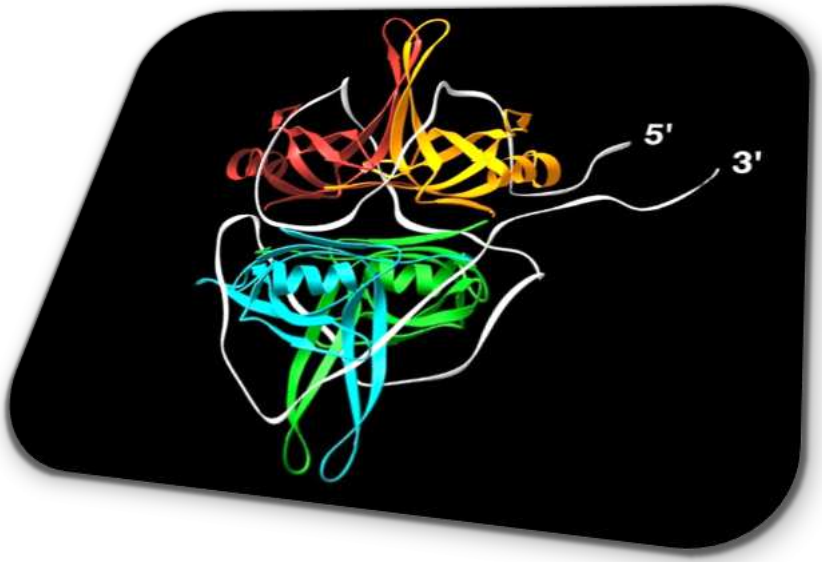
Jessica Kuchta-Miller – Staff/Postdoc/Graduate Student Ombuds, 314-379-8110

Karen O'Malley – Medical Student Ombuds, 314-660-2089

Jim Fehr – Faculty Ombuds, 314-660-2089

Spotlight on Research

Research in the **Lohman Lab** focuses on obtaining a molecular understanding of the mechanisms of protein-nucleic acid interactions involved in DNA metabolism, in particular, DNA motor proteins (helicases/translocases) and single stranded DNA binding proteins. Thermodynamic, kinetic, structural and single molecule approaches are used to probe these interactions at the molecular level.



See more research:
biochem.wustl.edu/spotlight

Paycheck Checkup Can Prevent a Tax-Time Surprise

It's important to check your federal income tax withholding now to avoid an unexpected tax bill or penalty at tax time. The IRS Withholding Calculator can help.

Everyone should check their withholding. Due to tax law changes, it's especially important to check now if you:

- Are a two-income family
- Have two or more jobs at the same time
- Work a seasonal job or only work part of the year
- Claim credits like the child tax credit
- Have dependents age 17 or older
- Itemized your deductions on your 2017 return
- Have high income or a complex tax return
- Had a large tax refund or tax bill for 2017

Use the IRS Withholding Calculator to do a Paycheck Checkup

- The IRS Withholding Calculator helps figure out if you should submit a new Form W-4 to your employer.
- Have your most recent pay stub and federal tax return on hand.
- The calculator's results are only as accurate as the information you enter.
- Find the IRS calculator at **IRS.gov/withholding**.

NEW WASTE SORTING GUIDELINES

ALWAYS EMPTY FOODS AND LIQUIDS BEFORE RECYCLING CONTAINERS

Sustainability
Washington University in St. Louis

TO-GO BOXES

COFFEE CUPS
& PLASTIC LIDS

PLASTIC UTENSILS

WHEN COMPOST IS NOT AVAILABLE

COMPOST

RECYCLE

LANDFILL


RECYCLE
WASTE SORTING GUIDE : 2-STREAM
METAL & GLASS
PLASTICS
NO #6 OR BAGS
PAPER, CARTONS
& CARDBOARD
NO
FOOD/LIQUIDS
TO-GO BOXES
PAPER CUPS
FOOD CONTAMINATES RECYCLING


LANDFILL
FOOD/LIQUIDS
TO-GO BOXES
PLASTIC UTENSILS
PLASTIC #6
PAPER CUPS
STYROFOAM
SNACK WRAPPERS
SOFT PLASTICS & BAGS
QUESTIONS? SUSTAINABILITY.WUSTL.EDU
Sustainability

September Publication

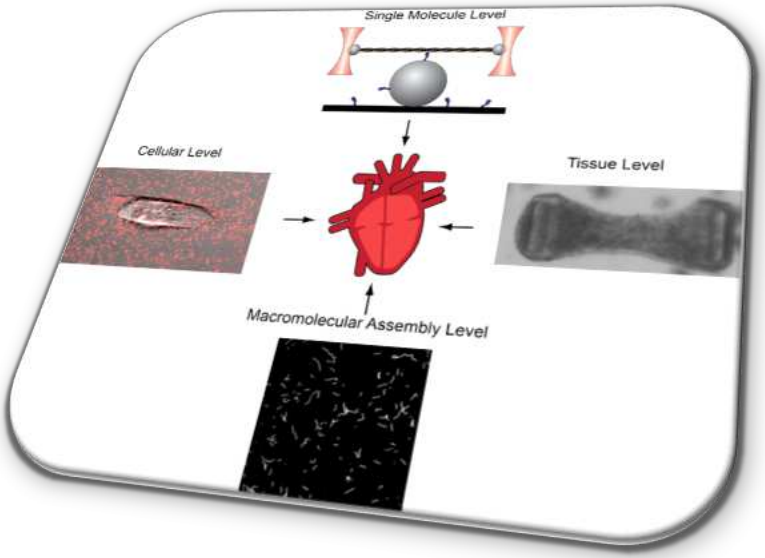
Onken M.D., Makepeace C.M., Kaltenbronn K.M., Kanai S.M., Todd T.D., Wang S., Broekelmann T.J., Rao P.K., **Cooper J.A.**, & Blumer K.J.

Targeting nucleotide exchange to inhibit constitutively active G protein α subunits in cancer cells.

Sci Signal. 11(546). pii: eaao6852. doi: 10.1126/scisignal.aao6852. (2018)

Spotlight on Research

The **Greenberg Lab** focuses on how cytoskeletal motors function in both health and disease. Currently, the lab is studying mutations that cause familial cardiomyopathies, the leading cause of sudden cardiac death in people under 30 years old. The lab uses an array of biochemical, biophysical, and cell biological techniques to decipher how these mutations affect heart contraction from the level of single molecules to the level of engineered tissues. Insights into the disease pathogenesis will guide efforts to develop novel therapies.



See more research:
biochem.wustl.edu/spotlight

September Publication

Geronimo C.L., **Singh S.P.**, **Galletto R.**, & Zakian V.A.

The signature motif of the Saccharomyces cerevisiae Pif1 DNA helicase is essential in vivo for mitochondrial and nuclear functions and in vitro for ATPase activity.

Nucleic Acids Res. 46(16):8357-8370. doi: 10.1093/nar/gky655. (2018)

BMB Support

Computer not working?
Not getting email on your smartphone?

We are here to help with the many computing issues that may pop up in your day-to-day operations.

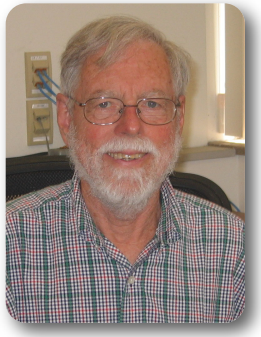
Support email: support@biochem.wustl.edu

Support website: BiochemSupport.wustl.edu

Just send us an email or visit our website and click on *Request Support* to get help!

July Publication





Sukumar N., **Liu S.**, **Li W.**, **Mathews F.S.**, Mitra B., & Kandavelu P.

Structure of the monotopic membrane protein (S)-mandelate dehydrogenase at 2.2Å resolution.

Biochimie. pii: S0300-9084(18)30212-8. doi: 10.1016/j.biochi.2018.07.017. (2018)

TEA TIME

for Faculty, Staff, Postdocs & Students

Tuesdays & Thursdays
3:00-4:00 pm

Biochemistry Break Room
201 McDonnell Sciences Building

Coffee, tea and cookies are served.

September Publication

Rezaei-Ghaleh N., Parigi G., **Soranno A.**, Holla A., Becker S., Schuler B., Luchinat C., & Zweckstetter M.

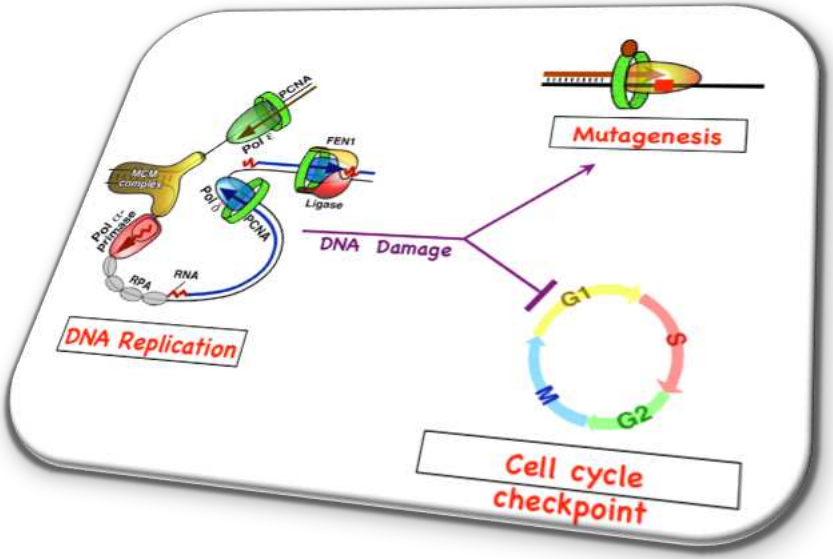
Local and Global Dynamics in Intrinsically Disordered Synuclein.

Angew Chem Int Ed Engl. doi: 10.1002/anie.201808172. (2018)

Spotlight on Research

The **Burgers Lab** studies DNA replication and DNA damage response in eukaryotic cells. Using yeast as a model organism, the lab integrates the biochemical analysis of DNA-protein interactions in purified model systems with the genetic analysis of targeted yeast mutants. Specific areas of interest are lagging strand DNA replication and Okazaki fragment maturation, damage induced mutagenesis, and DNA damage cell cycle checkpoints.

Right: DNA replication fork and Okazaki fragment maturation

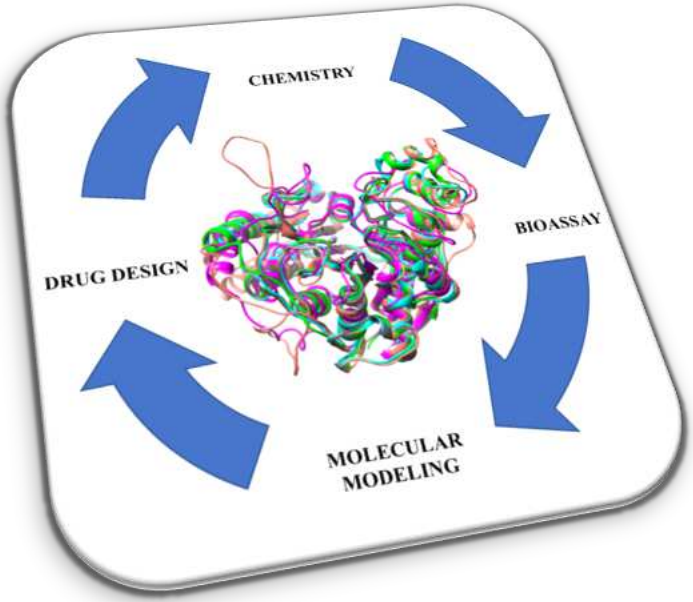


See more research:
biochem.wustl.edu/spotlight

Holiday Schedule

Holiday	Day	Date Observed at WU
Labor Day	Monday	September 3rd, 2018
Thanksgiving Day	**Thursday**	**November 22nd, 2018**
Friday after Thanksgiving	**Friday**	**November 23rd, 2018**
Christmas Eve	**Monday**	**December 24th, 2018**
Christmas Day	**Tuesday**	**December 25th, 2018**
New Years Eve	**Monday**	**December 31st, 2018**

Spotlight on Research



The **Marshall Lab** performs a synergistic application of organic synthesis (solution- and solid-phase chemistry), enzymatic assays (electrophoretic mobility shift assays (EMSA) and surface plasmon resonance (SPR)), and computational chemistry techniques (homology modeling, molecular docking, molecular dynamics simulations, QSAR and 3D QSAR models) to rationally develop novel isoform-selective Lysine Deacetylases Inhibitors (KDACIs) as new therapeutics for the treatment of cancer, HIV-1, schistosomiasis and malaria.

See more research:
biochem.wustl.edu/spotlight

BMB SCIENCE FRIDAYS

a forum for new data, new ideas
and works in progress

Science Fridays and Happy Hour:
EVERY FRIDAY, starting at 4PM.

Department of Biochemistry and Molecular Biophysics
Washington University in St. Louis • School of Medicine

October Publication

Axelrod D., **Elson E.L.**, Schlessinger J., & Koppel D.E.

Reminiscences on the "Classic" 1976 FRAP Article in Biophysical Journal.

Biophys J. 115(7):1156-1159. doi: 10.1016/j.bpj.2018.08.037. (2018)

Back Up Your Stuff!

Don't let your important files and data go up in flames!

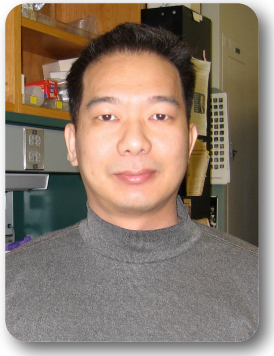
If you are not putting your important files on our servers (such as BMBCore), then it is possible that they are NOT getting backed up!

ARE YOU COMFORTABLE WITH LOSING ALL OF YOUR RESEARCH DATA?

Make sure that your computer is running a backup program!

Want to make sure your computer is backed up?
We provide several backup solutions.
Just send an email: support@biochem.wustl.edu

August Publication

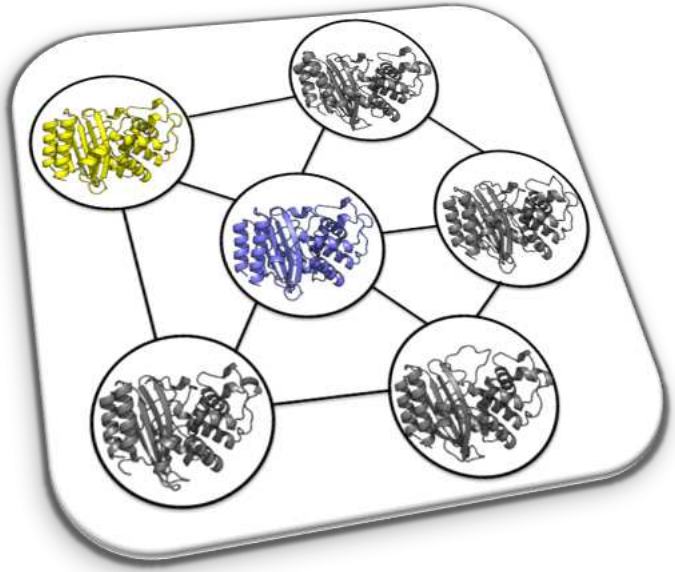




Ordabayev Y.A., **Nguyen B.**, Niedziela-Majka A., & **Lohman T.M.**

Regulation of UvrD Helicase Activity by MutL.

J Mol Biol. pii: S0022-2836(18)30591-6. doi: 10.1016/j.jmb.2018.08.022. (2018)

Spotlight on Research



The **Bowman Lab** seeks to understand the distribution of different structures a protein adopts and how this ensemble determines a proteins function. Examples of ongoing research projects include 1) understanding how mutations in the enzyme beta-lactamase change its specificity without changing the protein's crystal structure, 2) designing allosteric drugs, and 3) developing algorithms for quickly building models of the different structures a protein adopts.

See more research:
biochem.wustl.edu/spotlight

September Publication

Woody M.S., **Greenberg M.J.**, Barua B., Winkelmann D.A., Goldman Y.E., & Ostap E.M.

Positive cardiac inotrope omecamtiv mecarbil activates muscle despite suppressing the myosin working stroke.

Nat Commun. 9(1):3838. doi: 10.1038/s41467-018-06193-2. (2018)